## REMARKS

In view of the above amendments and following remarks, reconsideration of the rejections that are contained in the Office Action of September 2, 2010 is respectfully requested.

In the Office Action, the Examiner finally rejected claims 34, 35, 37-39, 41, 43, 44 and 58 as being anticipated by Economikos. Claims 34, 35, 37-39, 41, 43, 44 and 58 were further rejected as being unpatentable over Economikos in view of Chadda or Emesh. Claims 40 and 42, further, were rejected as being unpatentable over Economikos in view of Chadda or Emesh and in further view of Matsuda et al. However, it is respectfully submitted that the present invention clearly patentably defines over Economikos and the secondary references that have been cited by the Examiner. This is particularly the case in view of the amendments that have been proposed above.

By the above amendment, previous claims 41-58 all now stand as canceled. Further, claim 34 has been proposed to be amended to recite that, in the step of plating the substrate by applying a plating voltage between the seed layer and the anode, the plating is carried out while intermittently stopping the plating by applying no voltage between the seed layer and the anode for supplying a new plating solution between the seed layer and the porous contact member.

The description of the operation of the plating method according to the present invention begins at line 19 of page 44 of the original specification.

In the example that is described in the specification, an electrode head 502 is moved from an idling position, at which replacement of the plating solution takes place, and lowered so that the electrode head 502 reaches a process position. An anode chamber 530 is pressurized to a pressure $P_3$, and plating solution Q that is held by the electrode head 502 is discharged from a lower surface of a porous pad 534. Pressurized air is introduced into airbags 540, 542 and 546 and a lower pad 534 is pressed downwardly. Plating then takes place by applying a plating voltage between the seed layer and the anode. After plating has been performed for a certain period of time, cathode electrodes 512 and anode 526 are disconnected from plating power source 560, anode chamber 530 is restored to atmospheric pressure, and airbags 540, 542 and 546 are restored to atmospheric pressure. This separates the lower pad 534a from the substrate W and the plating solution between the lower pad 534a and the substrate W is refreshed. Next, the airbags are repressurized and pressurized fluid is introduced into the anode chamber 530, and cathode electrodes 512 and anode 526 are again connected to the plating power source 560 to

perform further plating of the surface of the substrate W. This operation can be repeated a plurality of times as needed. Note Fig. 4, which illustrates the operation being repeated twice.

Accordingly, with the present invention the plating and the supply of the new plating solution are repeated. As a result, a phenomenon of suppressing deposition of a plated film at raised portions of the seed layer, and performing deposition of the plated film in recesses of the seed layer, is maintained. An ideal plating action is thus obtained in that the recesses of the seed layer are preferentially plated.

The reference to Economikos discloses a process in which electrode plating and electrode etching are alternately performed a number of times. In electroplating, a plating voltage is applied. In electro etching, a plating voltage is not applied, but rather, the voltage is reversed. Thus, fundamentally, Economikos fails to teach applying no voltage between the seed layer and the anode for supplying a new plating solution between the seed layer and the porous contact member as required by claim 34.

Looking for example in Fig. 2, of Economikos, it may be seen that Economikos has a wafer 1 that is held upside down and a wafer carrier 12 rotating with respect to a table 10 that has a polishing pad 20. Table 10 has holes 210, 220 forming channels for dispensing plating solution onto the surface of pad 20. As noted at the top of column 4, during a plating process, plating solution is pumped from a reservoir 200 through the holes 220. Noting the discussion beginning in line 16 of column 4, plating solution is continuously dispensed onto pad 20 while the wafer rotates with respect to the pad; the supply of plating solution to the wafer is thus constantly refreshed. Noting the discussion beginning in line 47 of column 4, a sequence of plating and planarization processes generally begins with the plating step. Noting the paragraph beginning line 54 of column 4, the plating solution on the pad is continuously replenished. Noting the first complete paragraph in column 5, alternating plating and etching processes are performed. During the etching step, downward force on the wafer is reduced. Note also Fig. 6 of Economikos illustrating this sequence of operations.

Claim 34 requires the supplying of the plating solution between the surface of the seed layer and an anode that is spaced from the seed layer at a certain interval through a porous contact member. Plating of the substrate is then carried out, as required by claim 34, by applying plating voltage between the seed layer and the anode. This is carried out while intermittently

stopping the plating by applying no voltage between the seed layer and the anode for supplying a new plating solution between the seed layer and the porous contact member.

By contrast, in Economikos the plating solution is supplied continuously during plating. When plating is stopped, an electro etching solution is dispensed onto the pad; see for example lines 61-63 of column 2. As noted at the top of column 3, the electro etching may be performed using the electroplating solution. But in any case, there is no intermittent stopping of the plating for supplying a new plating solution between the seed layer and the porous contact member.

Accordingly, it is respectfully submitted to be clear that independent claim 34 as proposed to be amended above patentably defines over Economikos. Entry of the amendment is appropriate at this time, as it clearly places claim 34, along with its dependent claims, into condition for allowance. The other independent claims have been canceled to reduce the issues presented at this time. The secondary references that have been cited do not provide any disclosure of intermittently stopping the plating by applying no voltage between the seed layer and the anode for supplying a new plating solution between the seed layer and the porous contact member is required in combination in claim 34. As such, it is respectfully submitted that the present application as a whole is in condition for allowance, and indication of such is respectfully requested.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance, and the Examiner is requested to pass the case to issue. If the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact Applicants' undersigned representative.

Respectfully submitted,

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